MODULE VI SHORT-TERM INCINERATION

VI.A. GENERAL CONDITIONS FOR INCINERATORS AND FURNACES

VI.A.1. TRIAL BURN PLANS

VI.A.1.a. Trial Burn Plan Submittal

VI.A.1.a.i. The Permittee shall submit a trial burn plan for each agent and for each incinerator that will process that agent. The Permittee shall perform a trial burn for each agent to be processed, for each furnace that will process that agent. The Permittee shall submit each trial burn plan a minimum of 180 days prior to the start of the Shakedown Period for the planned trial burn.

VI.A.1.a.ii. Each individual trial burn plan for each furnace and each remaining agent shall be submitted by the Permittee in accordance with R315-3-4.

VI.A.1.a.iii. These trial burn plans shall define operating conditions and waste feed rates that will be used to determine incinerator performance in accordance with R315-8-15.4.

VI.A.1.a.iv. The trial burn plan shall include ramp-up procedures to be implemented during shakedown for the furnace.

VI.A.1.a.v. The trial burn plan shall include sampling and analytical methods in order to include decontamination solution in the trial burn runs. Proposed feed rates shall be evaluated by the Executive Secretary prior to use during Short-Term Incineration.

VI.A.1.a.vi. The Executive Secretary shall review and approve all munition lot numbers to be processed during Short-Term Incineration.

VI.A.2. SHAKEDOWN

VI.A.2.a. Shakedown Periods

VI.A.2.a.i. The Permittee may not start the Shakedown Period in the specific furnace system until the Executive Secretary approves the specific agent trial burn plan.

VI.A.2.a.ii. The Shakedown Period shall begin with the introduction of each agent in the furnace and shall end with the start of each furnace chemical agent trial burn. There shall be a separate Shakedown Period for each furnace (LIC, MPF, and DFS), for VX and Mustard agents.

VI.A.2.b. Duration of the Shakedown Periods

VI.A.2.b.i. Each Shakedown Period shall not exceed 720 hours of agent operation. The Permittee may petition the Executive Secretary for one extension of the Shakedown Period for up to 720 additional hours for each agent test in accordance with R315-8-15.5(c)(1).

VI.A.2.b.ii. The Permittee may enter into a second Shakedown Period for evaluation with VX agent in either LIC. This Shakedown Period shall not exceed 720 hours of operation.

VI.A.2.b.iii. The Permittee may enter into a second Shakedown Period for evaluation with VX agent in the MPF. This shakedown period shall not exceed 720 hours of operation.

VI.A.2.b.iv. The Permittee may enter into a second Shakedown Period for the evaluation of Polychlorinated Biphenyl (PCB) emissions. This shakedown period shall not exceed 300 hours of operation or until the supplementary testing required by the EPA National Program Chemicals Division is completed.

VI.A.3. TRIAL BURN

VI.A.3.a. Trial Burn Determinations

VI.A.3.a.i. The Permittee shall determine during the trial burn tests whether or not the following performance standards have been met:

Performance Standards	**Agent Trial Burn**		
Minimum DREs for Applicable POHCs	99.9999% (LIC, Agent) 99.99% (MPF, Agent) 99.99% (DFS, Agent) 99.99% (DFS, PEP)		
Particulate Matter Emission Limit	34.3 mg/m^3, at 7% O_2		
Mercury (Hg)	130 μg/dscm at 7% O_2		
Semi-volatile Metals (Pb, Cd)	240 μg/dscm at 7% O_2		
Low-volatility Metals (As, Be, Cr)	97 μg/dscm at 7% O_2		
Hydrogen Chloride / Chlorine (HCl/Cl_2) Emission Limit	The more stringent of either 77 ppmv total HCl and Cl_2 expressed as HCl equivalents Or The larger of either four lbs/hr or 1% of the HCl in the stack gas prior to entering any pollution control equipment		
Toxic Metals Emission Limits	At levels determined by the Executive Secretary to be protective of human health and environment.		
Dioxins/Furans TEQ	0.2 ng/dscm at 7% O_2		
CO Emission Limit, 60-Minute Rolling Average	100 ppmv at 7% O_2		
Chemical Agents Emission Limits	GB	H/HD/HT	VX
	0.0003 mg/m^3	0.03 mg/m^3	0.0003 mg/m^3

VI.A.3.a.ii. Emissions from each trial burn shall be measured to quantify total organics.

VI.A.3.a.iii. The Permittee may use Cr^{+6} test data collected during the agent trial burn to quantify the amount of the total chromium that is subject to the Toxic Metals Emission Limits in the table above.

VI.A.3.b. Trial Burn Data Submissions and Certifications

VI.A.3.b.i. The Permittee shall submit a summary of all stack sampling data collected during the trial burn to the Executive Secretary upon completion of each trial burn run. The Permittee shall submit to the Executive Secretary a trial burn test report within 90 calendar days of completion of each trial burn. All submissions shall be certified in accordance with R315-3-2.2.

VI.A.3.b.ii. If the preliminary calculations show that the Permittee has failed to meet one or more of the performance standards listed in Condition VI.A.3.a. during the trial burn, the Permittee shall immediately stop waste feed to the incinerator system tested. The Executive Secretary shall be orally notified within 24 hours of this discovery. A written notification and explanation shall be submitted within 15 days of the oral notification. As necessary for protection of workers, the Permittee may propose a revised post-trial burn feed rate for approval to dispose of open munitions/bulk containers and the hazardous waste remaining in the tank systems.

VI.A.4. MONITORING, INSPECTION, AND RECORDKEEPING REQUIREMENTS

VI.A.4.a. Monitoring Requirements

VI.A.4.a.i. The Permittee shall maintain and calibrate the monitoring and recording equipment as specified in Attachments 3 (Sampling, Analytical, and QA/QC Procedures), 6 (Instrument Calibration Plan and Incinerator Waste Feed Interlock Function Test), 19 (Instrumentation and Waste Feed Cut-off Tables), 20 (Continuous Emission Monitoring System Plans), and 22 (Agent Monitoring Plan).

VI.A.4.a.ii. Monitoring of oxygen (O_2), carbon monoxide (CO), and agent shall be provided. If an interruption in monitoring occurs, feed to the effected furnace shall be discontinued except as allowed in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables). DAAMS tubes shall be analyzed whenever any duct ACAMS is off line for any reason for more than 60 minutes. Monitoring shall resume in accordance with Attachment 22 (Agent Monitoring Plan).

VI.A.4.a.iii. The Permittee shall provide continuous monitoring in the common stack for agent per Condition VI.A.4.a.iv. If an interruption in monitoring occurs, feed to all of the furnace systems shall be discontinued.

VI.A.4.a.iv. In compliance with Condition VI.A.4.a.ii., the Permittee shall maintain and operate a redundant monitor for each oxygen (O_2) and carbon monoxide (CO) continuous emission monitor. In compliance with Conditions VI.A.4.a.ii and VI.A.4.a.iii., the Permittee shall maintain and operate Depot Area Air Monitoring System (DAAMS) tubes and an Automatic Continuous Air Monitoring System (ACAMS) monitor on each furnace exhaust duct and DAAMS tubes and staggered ACAMS monitors on the common stack for each agent. If one of the redundant monitors fails or malfunctions, the Permittee shall replace or repair the monitor within 24 hours. If both monitors fail or malfunction, then feed to the incinerator or furnace shall be stopped.

VI.A.4.a.v. The oxygen (O_2) and carbon monoxide (CO) monitors specified in Condition VI.A.4.a.ii. shall be initially certified in accordance with R315-50-16 [40 CFR Part 266, Appendix IX].

VI.A.4.a.v.a. Certification must be accepted by the Executive Secretary prior to operation of the monitor for compliance.

VI.A.4.a.v.b. Certification shall expire on the certification anniversary, unless recertification has been initiated prior to expiration.

VI.A.4.a.v.c. The certification date shall be the first day of certification testing.

VI.A.4.a.v.d. Any monitor failing certification shall not be used for compliance.

VI.A.4.a.vi. A certified monitor may only receive minor modifications and still remain certified. A list of minor and major changes and the corrective action is listed V.A.1.h.i.

VI.A.4.a.vi.a. Written approval from the Executive Secretary shall be required for downgrading from major to minor.

VI.A.4.a.vii. Major maintenance changes require recalibration of the CEMS in accordance with R315-50-16 [40 CFR Part 266, Appendix IX, Performance Specification Tests], Condition V.A.1.h. and Attachment 20 (CEMS Monitoring Plan).

VI.A.4.a.viii. Replacement monitors shall be available for the monitors specified in Conditions VI.A.4.a.ii. through VI.A.4.a.iv. The oxygen (O_2) and carbon monoxide (CO) monitors specified in Condition VI.A.4.a.ii. shall be certified in accordance with Conditions VI.A.4.a.v. through vii. Replacement ACAMS shall be certified in accordance with Attachment 3 (Sampling, Analytical, and QA/QC Procedures).

VI.A.4.a.ix. Replacement of the oxygen (O_2) and carbon monoxide (CO) CEMS specified in Condition VI.A.4.a.ii. shall be in accordance with the following:

VI.A.4.a.ix.a. The replacement CEMS shall be calibrated in accordance with R315-50-16 [40 CFR Part 266, Appendix IX, 2.1.6.2. for Response Time, and 2.1.6.3 for Calibration Error] immediately after installation.

VI.A.4.a.ix.b. The replacement CEMS shall be calibrated when installed and daily thereafter for Calibration Drift.

VI.A.4.a.ix.c. The replacement CEMS must be calibrated and on line before the calibration of the first monitor has expired. If this cannot be accomplished, feed to the specific furnace system shall be discontinued.

VI.A.4.a.ix.d. Both monitors for one location may not be replaced within one 24-hour period without approval from the Executive Secretary.

VI.A.4.a.ix.e. Replacement CEMS information shall also be included in the annual report specified in Condition I.AA.

VI.A.4.a.x. A report specifying the following information shall be submitted to the Executive Secretary within 14 calendar days of replacement of any monitor specified in Condition VI.A.4.a.ix.e.:

VI.A.4.a.x.a. The calibration data, raw and Process Data Acquisition and Recording System (PDARS), in accordance R315-50-16 [40 CFR Part 266, Appendix IX];

VI.A.4.a.x.b. Failed and replacement monitor serial numbers, type and range of the monitors;

VI.A.4.a.x.c. Date and time monitor failed;

VI.A.4.a.x.d. Maintenance to be performed; and

VI.A.4.a.x.e. The identity of the furnace.

VI.A.4.a.xi. A CEMS may be taken off line for calibration and minor maintenance as specified in Condition V.A.1.h.

VI.A.4.a.xii. Data from both the primary and redundant CEMS, shall be recorded.

VI.A.4.a.xiii. Data from one monitor, identified by tag number, shall be used for reporting requirements.

VI.A.4.a.xiv. Both monitors shall be connected to the waste feed cut-off.

VI.A.4.a.xv. Hazardous wastes shall not be fed to a furnace if any waste feed cut-off instrument associated with that furnace listed in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables) fails to operate properly.

VI.A.4.a.xvi. All monitoring, recording, maintenance, calibration and test data shall be recorded and the records shall be placed in the Operating Record for the specific furnace.

VI.A.4.a.xvii. ACAMS on the common stack shall be comprised of two primary monitors in staggered mode of sampling for continuous monitoring for agent. A back-up monitor shall be calibrated and stationed in the stack monitoring house for contingency purposes, i.e., primary monitor malfunctions or calibration.

VI.A.4.a.xviii. DAAMS tubes on the common stack shall be analyzed at a frequency of one tube per four hours of sampling with a corresponding QP sample for each agent.

VI.A.4.a.xix. Data from all ACAMS (except those at the CAL) shall be reported on PDARS.

VI.A.4.a.xx. Data from all DAAMS analyses shall be reported in the Operating Record.

VI.A.4.a.xxi. Confirmed agent alarms shall be orally reported to the Executive Secretary within 24 hours of confirmation.

VI.A.4.b. <u>Inspection Requirements</u>

VI.A.4.b.i. The Permittee shall comply with the inspection requirements specified in Condition V.A.3.

VI.A.4.c. Recordkeeping Requirements

VI.A.4.c.i. The Permittee shall comply with the recordkeeping requirements as specified in Condition V.A.6.

VI.B. LIQUID INCINERATORS (LICs)

VI.B.1. SHAKEDOWN

VI.B.1.a. Allowable Waste Feed

VI.B.1.a.i. During the shakedown periods, the Permittee shall limit the hourly feed of hazardous and non-hazardous wastes, decontamination solutions and Munition Demilitarization Building aqueous liquid wastes to the LIC to that specified in the LIC Agent Trial Burn Plan specific to the agent being processed.

VI.B.1.a.ii. The Permittee shall not feed the following wastes to the LIC during the Shakedown Periods.

VI.B.1.a.ii.a. Hazardous Wastes F020 through F023, F026, and F027.

VI.B.1.a.ii.b. Any wastes containing polychlorinated biphenyls.

VI.B.1.a.iii. The feed rate of chlorine to each LIC shall not exceed 445 pounds per hour during each shakedown and trial burn. The feed rate of chlorine to each LIC shall not exceed 222 pounds per hour during the post-trial burn periods. The Permittee shall specify expected feed rates in each trial burn plan.

VI.B.1.a.iv. Decontamination solution with the F999 waste code, and other applicable waste codes, may be fed to the secondary chamber of the LIC during the shakedown period only if the operating conditions specified in Condition VI.B.1.b. are satisfied and the waste feed cut-off limits specified in the trial burn plans are in effect.

VI.B.1.a.v. Changes to the LICs shall be certified as specified in Condition I.S.

VI.B.1.a.vi. Throughout the shakedown periods, the Permittee shall conduct waste analysis in accordance with the approved trial burn plan and Attachments 2 (Waste Analysis Plan) and 3 (Sampling, Analytical, and QA/QC Procedures) for agent and other hazardous waste.

VI.B.1.a.vii. The Permittee shall determine waste codes for each waste stream as specified in Attachment 2 (Waste Analysis Plan).

VI.B.1.b. Operating Conditions

VI.B.1.b.i. During the shakedown periods, the Permittee shall operate the LIC furnace system in accordance with the approved trial burn plans and the following conditions:

VI.B.1.b.i.a. The Permittee shall monitor emissions from the LIC duct and the common stack for chemical agent as specified in Condition VI.A.4.a. The waste feed to the incinerator shall be automatically cut-off if any of the monitored emission levels exceed the values specified in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables).

VI.B.1.b.i.b. Primary combustion chamber exhaust gas temperature shall be maintained at or above 2,550° F, but shall not exceed 2,850° F.

VI.B.1.b.i.c. Secondary combustion chamber exhaust gas temperature shall be maintained at or above 1,850° F, but shall not exceed 2,200° F.

VI.B.1.b.i.d. Carbon monoxide concentration at the exhaust blower exit, corrected to 7% oxygen in accordance with the formula specified in Condition V.A.2.e., shall not exceed 100 parts per million (ppm) dry volume over a one-hour rolling average.

VI.B.1.b.i.e. For either LIC, the sum of the combustion gas residence time within the primary and secondary chambers and the connecting ducts up to the waste feed cut-off thermocouple 13-TE-129 (LIC1) or 13-TE-782 (LIC2) shall not drop below 2.0 seconds. The pressure drop instruments, 13-PDIT-854 (LIC1) and 13-PDIT-855 (LIC 2), which measure secondary chamber exhaust gas velocity, shall not exceed 0.6 inches of water column on the differential pressure monitor.

VI.B.1.b.i.f. Oxygen concentration at the exhaust blower exit shall be maintained at or above 3%, but shall not exceed 15% on a dry volume basis.

VI.B.1.b.i.g. The gas flow rate of the LIC system shall be maintained between 10,200 and 15,400 ACFM at the exit of the exhaust blower. This parameter is measured during the Trial Burn Period.

VI.B.1.b.i.h. Atomizing air pressure for the waste burner nozzles, for both chemical agent and decontamination solution shall be maintained at or above the following set points:

VI.B.1.b.i.h.1. Primary Combustion Chamber, All Feed Rates (1-100%) - 60 psig

VI.B.1.b.i.h.2. Secondary Combustion Chamber, All Feed Rates (1-100%) - 60 psig

VI.B.1.b.i.i. The Permittee shall control fugitive emissions from the combustion zone of the LIC by maintaining the pressure in the primary combustion chamber below the pressure of the LIC furnace room.

VI.B.1.b.i.j. Quench tower exhaust gas temperature shall not exceed 225° F.

VI.B.1.b.i.k. Exhaust gas pressure drop across the venturi scrubber shall be maintained above 20 inches of water column.

VI.B.1.b.i.l. Clean liquor flow rate to the scrubber tower shall be maintained at or above 400 gpm.

VI.B.1.b.i.m. Clean liquor pressure to the scrubber tower shall be maintained at or above 25 psig.

VI.B.1.b.i.n. Quench brine liquid feed rate to the venturi scrubber shall be maintained at or above 100 gallons per minute. Quench brine delivery pressure shall be maintained at or above 40 psig.

VI.B.1.b.i.o. Scrubber liquid effluent specific gravity shall not exceed 1.28 specific gravity units.

VI.B.1.b.i.p. The pH of the scrubber liquid effluent shall be maintained at 7.0 or above.

VI.B.1.b.i.q. The maximum feed rate to the LIC primary combustion chamber shall not exceed the value specified in the approved trial burn plan for any two-minute period.

VI.B.1.b.i.r. The maximum feed rate to the LIC secondary combustion chamber shall not exceed the values specified in the approved trial burn plan for any two-minute period.

VI.B.1.b.i.s. The Permittee shall monitor and control the emissions from the LIC system. The emission levels from each monitoring system shall not exceed the agent concentrations specified in Condition VI.A.3.a.

VI.B.1.b.i.t. During cold start-ups, the individual LIC's primary chamber waste nozzle shall not be installed and the waste feed control valve shall not be opened until the secondary combustion chamber is at 1,550° F or higher as measured by thermocouple 13-TIC-103 (LIC1) or 13-TIC-781 (LIC2).

VI.B.1.b.i.u. If the exterior shell temperature of the slag removal system exceeds 500° F, all waste feed to the LIC system shall be stopped. Shell integrity shall be verified, and recorded in the Operating Record, before wastes are re-introduced into the furnace system.

VI.B.1.b.i.v. Toxic metals emissions shall be controlled by limiting the agent and agent contaminated waste feed rates to the furnaces. LIC metals feed limits are in Table V.1 in Module V. Metals feed shall be determined using procedures specified in Attachment 2 (Waste Analysis Plan).

VI.B.1.c. Waste Feed Cut-Off Requirements

VI.B.1.c.i. The Permittee shall identify the waste feed cut-off instruments in each individual trial burn plan. The Permittee shall identify the instrument number, the operating parameter, and the set point. When the waste feed cut-off tables for LIC1 and LIC2 are approved as part of the revised trial burn plans, the waste feed cut-off TAG identification numbers and associated set points shall be incorporated into Attachment 19 (Instrumentation and Waste Feed Cut-off Tables).

VI.B.1.c.ii. In the event of a malfunction of a LIC automatic waste feed cut-off instrument identified in the approved trial burn plan, the Permittee shall immediately manually cut off the waste feed to the LIC and correct the malfunction prior to resuming waste feed. The Permittee shall record in the Operating Record any waste feed cut-off system malfunction, the time of the malfunction, the time of resuming waste feed, the apparent cause of the malfunction, and specific steps taken to repair the malfunction and avoid similar future malfunctions.

VI.B.1.c.iii. All waste feed cut-off instruments shall be maintained and tested in accordance with Condition V.A.4.

VI.B.1.d. Monitoring Requirements

VI.B.1.d.i. The Permittee shall maintain and calibrate the monitoring and recording equipment as specified in Condition VI.A.4.a and V.A.1.h.i.

VI.B.2. TRIAL BURN PERIOD

VI.B.2.a. The Permittee shall operate and monitor the incinerator during the trial burn period as specified in each of the trial burn plans approved by the Executive Secretary. Each trial burn plan shall include procedures to insure that the data critical for conducting a risk assessment (e.g. dioxins/furans, metals, agent, etc.) meets the standards in the quality control plan accompanying the trial burn plan.

VI.B.2.b. Trial Burn Determinations

VI.B.2.b.i. The Permittee shall make the performance determinations specified in Condition VI.A.3.a. during the trial burn tests.

VI.B.2.c. Monitoring Requirements

VI.B.2.c.i. All continuous emission monitoring will follow the requirements as specified in Condition VI.A.4.a and V.A.1.h.i.

VI.B.3. POST-TRIAL BURN PERIOD

VI.B.3.a. During the post trial burn periods in accordance with R315-8-15.5(c)(3) and for the minimum period sufficient for the Permittee to analyze samples, compute data, and submit trial burn results, and for the Executive Secretary to review the trial burn results and make any modifications necessary to the permit, the Permittee shall comply with the following conditions:

VI.B.3.a.i. Limitation on Waste Feed

VI.B.3.a.i.a. After successful completion of an agent trial burn, the Permittee may feed permitted hazardous waste to the LIC up to 50% of the feed rate demonstrated during the trial burn. The Permittee may feed up to 75% of the demonstrated feed rate after approval of preliminary results by the Executive Secretary for the metals train, dioxin train, particulate/acid gas train(s), and VX DAAMS, including a preliminary DRE calculation. Full feed rates may be incorporated into Module V after the final report has been reviewed and approved by the Executive Secretary.

VI.B.3.a.i.b. Only one type of chemical agent shall be burned in the LIC System at any given time.

VI.B.3.a.i.c. Decontamination solution may be fed to the secondary chamber of the LIC during the agent post trial burn period only if the operating conditions specified in Condition

VI.B.3.a.ii. are satisfied and the waste feed cut-off limits specified in the trial burn plans are in effect.

VI.B.3.a.i.d. The Permittee shall not incinerate the miscellaneous agent contaminated liquid wastes in the LIC secondary combustion chamber except as allowed in Attachment 2 (Waste Analysis Plan).

VI.B.3.a.i.e. The feed rate of chlorine to each LIC shall not exceed 222 pounds per hour during the post-trial burn periods.

VI.B.3.a.i.f. Throughout the post-trial burn periods, the Permittee shall conduct analysis of the waste to be treated in the LICs to verify that the waste feed is within the physical and chemical composition limits specified in Module V and Attachment 2 (Waste Analysis Plan). The procedure shall follow the waste analysis requirements in the trial burn plan and Attachments 2 (Waste Analysis Plan) and 3 (Sampling, Analytical, and QA/QC Procedures) for agent and other hazardous waste.

VI.B.3.a.ii. Operating Conditions

VI.B.3.a.ii.a. The Permittee shall not treat any hazardous waste in the LIC during the post-trial burn period unless the system is operating in compliance with Condition VI.B.1.b., excluding the feed rates in Conditions VI.B.1.b.i.q., VI.B.1.b.i.r, and VI.B.1.b.i.v.

VI.B.3.a.iii. Waste Feed Cut-Off Requirements

VI.B.3.a.iii.a. The Permittee shall comply with the waste feed cut-off instrument settings specified in the approved trial burn plan.

VI.B.3.a.iii.b. In the event of a malfunction of a LIC automatic waste feed cut-off instrument as specified in the approved trial burn plan, the Permittee shall immediately manually cut off the waste feed to the LIC and correct the malfunction prior to resuming waste feed. The Permittee shall record in the Operating Record any waste feed cut-off system malfunctions, the time of the malfunction, the time of resuming waste feed, the apparent cause of the malfunctions, and specific steps taken to repair the malfunction and avoid similar future malfunctions.

VI.B.3.a.iii.c. All instrumentation shall be maintained and tested in accordance with Condition V.A.4.

VI.B.3.a.iv. Monitoring Requirements

VI.B.3.a.iv.a. The Permittee shall maintain and calibrate the monitoring and recording equipment as specified in Condition VI.A.4.a. and V.A.1.h.i.

VI.C. METAL PARTS FURNACE

VI.C.1. SHAKEDOWN

VI.C.1.a. Allowable Waste Feed

VI.C.1.a.i. During the shakedown periods, the Permittee shall limit the hourly feed of hazardous and non-hazardous waste test materials to the MPF to that specified in the MPF Agent Trial Burn Plan specific to the agent being processed.

VI.C.1.a.ii. The Permittee shall not feed the following wastes to the MPF during the Shakedown Period.

VI.C.1.a.ii.a. Hazardous Wastes F020 through F023, F026, and F027.

VI.C.1.a.ii.b. Any wastes containing polychlorinated biphenyls.

VI.C.1.a.iii. The feed rate of chlorine to the MPF shall not exceed 75 pounds per hour during the agent shakedown periods.

VI.C.1.a.iv. The hourly feed rate of the residual chemical agent contained in the MPF feed shall not exceed the limits provided in the approved trial burn plan.

VI.C.1.a.v. When an agent-filled munition cannot be automatically or manually drained below a 5% by weight heel, the Permittee shall comply with the operating conditions of VI.C.1.b.i.t.

VI.C.1.a.vi. Changes to the MPF shall be certified as specified in Condition I.S.

VI.C.1.a.vii. Throughout the shakedown periods, the Permittee shall conduct waste analysis in accordance with the approved trial burn plan and Attachments 2 (Waste Analysis Plan) and 3 (Sampling, Analytical, and QA/QC Procedures) for agent and other hazardous waste.

VI.C.1.a.viii The Permittee shall determine waste codes for each waste stream as specified in Attachment 2 (Waste Analysis Plan).

VI.C.1.b. Operating Conditions

VI.C.1.b.i. During the shakedown periods, the Permittee shall operate the MPF furnace system in accordance with the approved trial burn plans and the following conditions:

VI.C.1.b.i.a. The Permittee shall monitor emissions from the MPF duct and the common stack for chemical agent as specified in Condition VI.A.4.a. The waste feed to the incinerator shall be automatically cut off if any of the monitored emission levels exceed the values specified in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables).

VI.C.1.b.i.b. Only one loaded tray containing the waste materials shall be fed into the MPF at any given time, with a minimum 20-minute interval between each tray feed.

VI.C.1.b.i.c. The number of munitions units fed to the MPF per batch feed shall not exceed the limit specified in the approved trial burn plan.

VI.C.1.b.i.d. The temperature of all three zones of the primary chamber shall be maintained at or above 1,150° F, but shall not exceed 1,800° F.

VI.C.1.b.i.e. The MPF secondary combustion chamber temperature shall be maintained at or above 1,800° F, but shall not exceed 2,175° F.

VI.C.1.b.i.f Carbon monoxide concentration at the exhaust blower exit, corrected to 7% oxygen in accordance with the formula specified in Condition V.A.2.e., shall not exceed 100 ppm dry volume over a one-hour rolling average.

VI.C.1.b.i.g. Combustion gas residence time in the secondary combustion chamber shall not drop below 0.5 seconds. The pressure drop of the instrument that measures velocity shall not exceed 1.2 inches of water column on the differential pressure monitor.

VI.C.1.b.i.h. The gas flow rate of the MPF shall be maintained between 6,000 and 15,000 ACFM at the exit of the exhaust blower. This parameter is measured during the Trial Burn Period.

VI.C.1.b.i.i. Oxygen concentration at the exhaust blower exit shall be maintained at or above 3%, but shall not exceed 15% on a dry volume basis.

VI.C.1.b.i.j. The Permittee shall control fugitive emissions from the combustion zone of the MPF by maintaining the pressure in the primary chamber below the pressure of the MPF furnace room.

VI.C.1.b.i.k. Quench tower exhaust gas temperature shall not exceed 225° F.

VI.C.1.b.i.l. Exhaust gas pressure drop across the venturi scrubber shall be maintained above 20 inches of water column.

VI.C.1.b.i.m. Clean liquor flow rate to the scrubber tower shall be maintained at or above 400 gpm.

VI.C.1.b.i.n. Clean liquor pressure to the scrubber tower shall be maintained at or above 25 psig.

VI.C.1.b.i.o. Quench brine feed rate to the venturi scrubber shall be maintained at or above 50 gallons per minute and at or above a liquid delivery pressure of 70 psig.

VI.C.1.b.i.p. The pH of the scrubber liquid effluent shall be maintained at 7.0 or above.

VI.C.1.b.i.q. Scrubber liquid effluent specific gravity shall not exceed 1.20.

VI.C.1.b.i.r. Toxic metals emissions shall be controlled by limiting the agent and agent contaminated waste feed rates to the furnaces. MPF non-embedded metals feed limits are in Table V.2 in Module V. Non-embedded metals feed shall be determined using procedures specified in Attachment 2 (Waste Analysis Plan).

VI.C.1.b.i.s. The Permittee shall monitor and control the emissions from the MPF system. The emission levels from each monitoring system shall not exceed the Chemical Agents Emission Limits specified in Condition VI.A.3.a.

VI.C.1.b.i.t. Bulk items with heels in excess of 5% by weight shall not be processed unless a procedure protective of human health and the environment has been incorporated into this Permit in accordance with procedures specified in R315-3-4.

VI.C.1.b.i.u. The LIC and DFS incinerators shall not burn chemical agent or decontamination solutions whenever munitions or bulk items that have a heel in excess of 5 % by weight are being treated in the MPF.

VI.B.1.b.i.v. The Permittee shall comply with Conditions V.C. for processing munitions, bulk containers and secondary wastes in the Discharge Airlock utilizing either high temperature or low temperature monitoring. Low Temperature monitoring will be required if the specified upset conditions in V.C.2.r. are exceeded. Spray Tanks and mine drums shall be processed using low temperature monitoring until a monitoring plan, specific to Spray Tanks and mine drums has been approved by the Executive Secretary. The Permittee shall perform low-temperature monitoring in the MPF Discharge Airlock for all secondary waste.

VI.C.1.c. Waste Feed Cut-Off Requirements

VI.C.1.c.i. The Permittee shall identify the waste feed cut-off instruments in each individual trial burn plan. The Permittee shall identify the instrument number, the operating parameter, and the set point. When the waste feed cut-off tables for the MPF are approved as part of the revised trial burn plans, the waste feed cut-off TAG identification numbers and associated set points shall be incorporated into Attachment 19 (Instrumentation and Waste Feed Cut-off Tables).

VI.C.1.c.ii. In the event of a malfunction of a MPF automatic waste feed cut-off instrument identified in the approved trial burn plan, the Permittee shall immediately manually cut off the waste feed to the MPF and correct the malfunction prior to resuming waste feed. The Permittee shall record in the Operating Record any waste feed cut-off system malfunction, the time of the malfunction, the time of resuming waste feed, the apparent cause of the malfunction, and specific steps taken to repair the malfunction and avoid similar future malfunctions.

VI.C.1.c.iii. All instrumentation shall be maintained and tested in accordance with Condition V.A.4.

VI.C.1.d. Monitoring Requirements

VI.C.1.d.i. The Permittee shall maintain and calibrate the monitoring and recording equipment as specified in Condition VI.A.4.a and V.A.1.h.i.

VI.C.1.d.ii. MPF Discharge Airlock Monitoring will comply with V.C.1., VI.B.1.b.i.v., and Attachment 22 (Agent Monitoring Plan).

VI.C.2. TRIAL BURN PERIOD

VI.C.2.a. The Permittee shall operate and monitor the incinerator during the trial burn period as specified in each of the trial burn plans approved by the Executive Secretary. Each trial burn plan shall include procedures to insure that the data critical for conducting a risk assessment (e.g. dioxins/furans, metals, agent, etc.) meets the standards in the quality control plan accompanying the trial burn plan.

VI.C.2.b. Trial Burn Determinations

VI.C.2.b.i. The Permittee shall make the performance determinations specified in Condition VI.A.3.a. during the trial burn tests.

VI.C.2.c. Monitoring Requirements

VI.C.2.c.i. All continuous emission monitoring will follow the requirements as specified in Condition VI.A.4.a and V.A.1.h.i.

VI.C.3. POST-TRIAL BURN PERIOD

VI.C.3.a. During the post-trial burn periods, in accordance with R315-8-15.5(c)(3), and for the minimum period sufficient for the Permittee to analyze samples, compute data, and submit trial burn results, and for the Executive Secretary to review the trial burn results and make any modifications necessary to the permit, the Permittee shall comply with the following conditions:

VI.C.3.a.i. Limitation on Waste Feed

VI.C.3.a.i.a. Except as indicated below for Spray Tanks, after successful completion of an agent trial burn, the Permittee may feed approved hazardous waste to the MPF up to 50% of the feed rates demonstrated in the trial burn. For ton containers only, the Permittee may comply with the 50% feed rate limitation by either doubling the charge interval and not exceeding the agent heel weight demonstrated during the trial burn, or by draining the ton containers to less than half of the demonstrated agent feed weight and not decreasing the charge frequency demonstrated in the trial burn. The Permittee may feed up to 75% of the demonstrated feed rate after approval of preliminary results by the Executive Secretary for the metals train, dioxin train, particulate/acid gas train(s), and VX DAAMS results, including a preliminary DRE calculation. After successful completion of the VX Spray Tank Demonstration Test, the Permittee may feed Spray Tanks to the MPF up to 50% of the feed rates demonstrated during the test. For Spray Tanks only, the Permittee shall comply with the 50% feed rate limitation by maintaining the charge interval demonstrated during the demonstration test and limiting the number of Spray Tanks in the MPF at any time to one, except for times when a Spray Tank is returned from the Discharge Airlock to the MPF. The Permittee may feed Spray Tanks to the MPF at the agent heel and charge interval demonstrated during the demonstration test after approval by the Executive Secretary of the MPF VX Agent Trial Burn preliminary results referenced above and the Spray Tank Demonstration Test preliminary results for the VX DAAMS, particulate train, and metals train.

VI.C.3.a.i.b. Only one type of chemical agent (e.g., GB or VX) shall be fed into the MPF, at any given time. Secondary waste generated during the GB campaign cannot be fed on the same tray as secondary waste generated during the VX campaign.

VI.C.3.a.i.c. Non-munition agent contaminated debris, Agent Collection System residues, Quantification System maintenance residues, MDB process equipment, MDB HEPA filters, MDB carbon filter trays, munitions overpack containers, and discarded tools generated during operations under this Module may be incinerated after the agent trial burn periods. Table 2-4 in Attachment 2 (Waste Analysis Plan) lists these non-munition wastes. The maximum per hour feed rate and per furnace charge weights are as follows:

WASTE DESCRIPTION	MAXIMUM FEED RATES		
	POUNDS PER HOUR	CHARGES PER HOUR	MAX. POUNDS PER CHARGE[1]
Hazardous waste as identified in Attachment 2 (Waste Analysis Plan), Table 2-4	290	3	100

1. The charge weight limit and the feed rate limit do not apply to overpack/overpack sections. Overpacks that weigh more than the above charge weight limit will be dismantled to the extent possible before feeding to the MPF. Agent feed rate limits will be maintained as specified in the trial burn plan if any liquid agent is present in an overpack.

VI.C.3.a.i.d. All non-munition wastes that envelop an interior space (e.g. gauges, cans, escape air tanks, overpacks, glassware, etc.) must be opened or punctured before being placed in the MPF.

VI.C.3.a.i.e. The combustible wastes identified in VI.C.3.a.i.c. shall not be inside the MPF at the same time the wastes identified in VI.C.3.a.i.a. are in this incinerator.

VI.C.3.a.i.f. The feed rate of chlorine to the MPF shall not exceed 37 pounds per hour during the agent post-trial burn periods.

VI.C.3.a.i.g. Throughout the post-trial burn periods, the Permittee shall conduct analysis of the waste to be treated in the MPF to verify that the waste feed is within the physical and chemical composition limits specified in Module V and Attachment 2 (Waste Analysis Plan). The procedure shall follow the waste analysis requirements in the trial burn plan and Attachments 2 (Waste Analysis Plan) and 3 (Sampling, Analytical, and QA/QC Procedures) for agent and other hazardous waste.

VI.C.3.a.i.h. The Permittee shall not process any munitions containing a greater than 5% heel of mustard or VX agents unless it has demonstrated, through an approved agent trial burn, that it can do so in compliance with the Performance Standards in Condition VI.A.3.

VI.C.3.a.i.i. In accordance with an approved trial burn plan, the Permittee shall demonstrate compliance with the Performance Standards in Condition V.A.2. for the highest rate at which it will feed waste to the MPF.

VI.C.3.a.ii. Operating Conditions

VI.C.3.a.ii.a. The Permittee shall not treat any hazardous waste in the MPF during the post-trial burn period unless the MPF system is operating in compliance with Condition VI.C.1.b., excluding the feed rates in Conditions VI.C.1.b.i.c. and VI.C.1.b.i.r.

VI.C.3.a.iii. Waste Feed Cut-Off Requirements

VI.C.3.a.iii.a. The Permittee shall comply with the waste feed cut-off instrument settings specified in the approved trial burn plan.

VI.C.3.a.iii.b. In the event of a malfunction of a MPF automatic waste feed cut-off instrument as specified in the approved trial burn plan, the Permittee shall immediately manually cut off the waste feed to the MPF and correct the malfunction prior to resuming waste feed. The Permittee shall record in the Operating Record any waste feed cut-off system malfunctions, the time of the malfunction, the time of resuming waste feed, the apparent cause of the malfunctions, and specific steps taken to repair the malfunction and avoid similar future malfunctions.

VI.C.3.a.iii.c. All instrumentation shall be maintained and tested in accordance with Condition V.A.4.

VI.C.3.a.iv. Monitoring Requirements

VI.C.3.a.iv.a. The Permittee shall maintain and calibrate the monitoring and recording equipment as specified in Condition VI.A.4.a and V.A.1.h.i.

VI.D. DEACTIVATION FURNACE SYSTEM (DFS)

VI.D.1. SHAKEDOWN

VI.D.1.a. Allowable Waste Feed

VI.D.1.a.i. During the Shakedown Periods, the Permittee shall limit the hourly feed of agent and ECR maintenance residue to the DFS to that specified in the DFS Agent Trial Burn Plan specific to the agent being processed.

VI.D.1.a.ii. The Permittee shall not feed the following wastes to the DFS, during the Shakedown Period:

VI.D.1.a.ii.a. Hazardous Wastes F020 through F023, F026, and F027.

VI.D.1.a.iii. The feed rate of chlorine to DFS shall not exceed 6.4 pounds per hour during the agent shakedown periods.

VI.D.1.a.iv. The hourly feed rate of the residual chemical agent contained in the DFS feed, which was calculated using a 5% agent heel, shall not exceed the limits provided in the approved trial burn plan.

VI.D.1.a.v. Changes to the DFS shall be certified as specified in Condition I.S.

VI.D.1.a.vi. Throughout each Shakedown Period, the Permittee shall conduct waste analysis in accordance with the approved trial burn plan and Attachments 2 (Waste Analysis Plan) and 3 (Sampling, Analytical, and QA/QC Procedures) for agent and other hazardous waste.

VI.D.1.a.vii. The Permittee shall determine waste codes for each waste stream as specified in Attachment 2 (Waste Analysis Plan).

VI.D.1.b. Operating Conditions

VI.D.1.b.i. During the shakedown periods, the Permittee shall operate the DFS furnace system in accordance with the approved trial burn plan and the following conditions:

VI.D.1.b.i.a. The Permittee shall monitor emissions from the DFS duct and the common stack for chemical agent as specified in Condition VI.A.4.a. The waste feed to the incinerator shall be automatically cut off if any of the monitored emission levels exceed the values specified in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables).

VI.D.1.b.i.b. The number of munitions units fed to the DFS in one hour shall not exceed the limit specified in Condition V.D.1.a.

VI.D.1.b.i.c. The temperature of the unquenched DFS rotary kiln exhaust gas shall be maintained at or above 950° F.

VI.D.1.b.i.d. The temperature of heated discharge conveyor shall be maintained at or above 1,000° F.

VI.D.1.b.i.e. The DFS secondary combustion chamber temperature shall be maintained at or above 2,050° F, but shall not exceed 2,400° F.

VI.D.1.b.i.f. The rate of movement of the heated discharge conveyor shall be controlled so as to provide a minimum solid retention time of 15 minutes inside the heated enclosure.

VI.D.1.b.i.g. The rotational speed of the retort shall be maintained within the following parameters:

VI.D.1.b.i.g.1. The speed shall not exceed two revolutions per minute (rpm);

VI.D.1.b.i.g.2. Except when in oscillation mode, the speed shall not drop below 0.33 rpm;

VI.D.1.b.i.g.3. Hazardous waste may not be fed to the DFS while the retort is in oscillation mode except as provided in Attachment 19 (Instrumentation and Waste Feed Cut-off Tables).

VI.D.1.b.i.h. Carbon monoxide concentration at the exhaust blower exit, corrected to 7% oxygen in accordance with the formula specified in Condition V.A.2.e., shall not exceed 100 ppm dry volume over a one-hour rolling average.

VI.D.1.b.i.i. Combustion gas residence time in the secondary combustion chamber shall not drop below 2.0 seconds. The pressure drop of the instrument that measures velocity shall not exceed 0.95 inches of water column on the differential pressure monitor.

VI.D.1.b.i.j. The gas flow of the DFS shall be maintained between 22,000 and 40,000 ACFM at the exit of the exhaust blower. This parameter is measured during the Trial Burn Period.

VI.D.1.b.i.k. Oxygen concentration at the exhaust blower exit shall be maintained at or above 3%, but shall not exceed 15% on a dry volume basis.

VI.D.1.b.i.l. The Permittee shall control fugitive emissions from the combustion zone of the DFS by maintaining the pressure in the kiln below the pressure of the DFS furnace room.

VI.D.1.b.i.m. Quench tower exhaust gas temperature shall not exceed 225° F.

VI.D.1.b.i.n. Exhaust gas pressure drop across the venturi scrubber shall be maintained above 20 inches of water column.

VI.D.1.b.i.o. Quench brine feed rate to the venturi shall be at or above 300 gpm with a liquid delivery pressure at or above 40 psig.

VI.D.1.b.i.p. Clean liquor feed rate to the scrubber tower shall be maintained at or above 360 gpm.

VI.D.1.b.i.q. Clean liquor pressure to the scrubber tower shall be maintained at or above 15 psig.

VI.D.1.b.i.r. The pH of the scrubber liquid effluent shall be maintained at 7.0 or above.

VI.D.1.b.i.s. Scrubber liquid effluent specific gravity shall not exceed 1.20.

VI.D.1.b.i.t. The Permittee shall continuously monitor and control the emissions from the DFS system. The emission levels from each monitoring system shall not exceed the Chemical Agents Emission Limits specified in Condition VI.A.3.a.

VI.D.1.b.i.u. The temperature of the quenched DFS rotary kiln exhaust gas, shall not exceed 1,750° F.

VI.D.1.b.i.v. The temperature of the quenched DFS rotary kiln exhaust gas shall be maintained at or above 850° F.

VI.D.1.b.i.w. Toxic metals emissions shall be controlled by limiting the agent and agent contaminated waste feed rates to the furnaces. DFS non-embedded metals feed limits are in Table V.3 in Module V. Non-embedded metals feed shall be determined using procedures specified Attachment 2 (Waste Analysis Plan).

VI.D.1.c. Waste Feed Cut-Off Requirements

VI.D.1.c.i. The Permittee shall identify the waste feed cut-off instruments in each individual trial burn plan. The Permittee shall identify the instrument number, the operating parameter, and the set point. When the waste feed cut-off tables for the DFS are approved as part of the revised trial burn plans, the waste feed cut-off TAG identification numbers and associated set points shall be incorporated into Attachment 19 (Instrumentation and Waste Feed Cut-off Tables).

VI.D.1.c.ii. In the event of a malfunction of a DFS automatic waste feed cut-off instrument identified in the approved trial burn plan, the Permittee shall immediately manually cut off the

waste feed to the DFS and correct the malfunction prior to resuming waste feed. The Permittee shall record in the Operating Record any waste feed cut-off system malfunction, the time of the malfunction, the time of resuming waste feed, the apparent cause of the malfunction, and specific steps taken to repair the malfunction and avoid similar future malfunctions.

VI.D.1.c.iii. All instrumentation shall be maintained and tested in accordance with Condition V.A.4.

VI.D.1.d. Monitoring Requirements

VI.D.1.d.i. The Permittee shall maintain and calibrate the monitoring and recording equipment as specified in Condition VI.A.4.a and V.A.1.h.i.

VI.D.1.e. Inspection Requirements

VI.D.1.e.i. The Permittee shall comply with the Inspection Requirements specified in Condition V.A.3.

VI.D.1.f. Recordkeeping

VI.D.1.f.i. The Permittee shall comply with the recordkeeping requirements as specified in Condition V.A.6.

VI.D.1.f.ii. Every time ECR residues are fed to the DFS the following information shall be recorded and kept on file in accordance with R315-8-5.3:

VI.D.1.f.ii.a. The exact weight of the waste.

VI.D.1.f.ii.b. The location of the waste feed, identified as Line A or Line B chute.

VI.D.1.f.ii.c. A brief description of the waste.

VI.D.1.f.ii.d. The date and time the waste was fed to the DFS.

VI.D.2. TRIAL BURN PERIOD

VI.D.2.a. The Permittee shall operate and monitor the incinerator during the trial burn period as specified in each of the trial burn plans approved by the Executive Secretary. Each trial burn plan shall include procedures to insure that the data critical for conducting a risk assessment (e.g. dioxins/furans, metals, agent, etc.) meet the standards in the quality control plan accompanying the trial burn plan.

VI.D.2.b. Trial Burn Determinations

VI.D.2.b.i. The Permittee shall make the performance determinations specified in Condition VI.A.3.a. during the trial burn tests.

VI.D.2.c. Monitoring Requirements

VI.D.2.c.i. All emission monitoring will follow the requirements as specified in Condition VI.A.4.a and V.A.1.h.i.

VI.D.3. POST-TRIAL BURN PERIOD

VI.D.3.a. During the post trial burn periods in accordance with R315-8-15.5(c)(3) and for the minimum period sufficient for the Permittee to analyze samples, compute data, and submit trial burn results, and for the Executive Secretary to review the trial burn results and make any modifications necessary to the permit, the Permittee shall comply with the following conditions:

VI.D.3.a.i. Limitation in Waste Feed

VI.D.3.a.i.a. After successful completion of an agent trial burn, the Permittee may feed permitted hazardous waste to the DFS up to 50% of the chemical agent and combined Propellant, Explosive, and Pyrotechnic (PEP) feed rates demonstrated during the trial burn. The Permittee may process up to 75% of the demonstrated agent and PEP feed rates after approval of preliminary results by the Executive Secretary for the metals train, dioxin train, particulate/acid gas train(s), and VX DAAMS results, including a preliminary DRE calculation. Full feed rates may be incorporated into Module V after the final report has been reviewed and approved by the Executive Secretary.

VI.D.3.a.i.b. Only one type of chemical agent (e.g., GB or VX) shall be burned in the DFS at any given time. The Permittee shall follow the requirements of R315-3-4 prior to simultaneous processing of multiple munition types.

VI.D.3.a.i.c. The Permittee may only treat those ECR maintenance residues listed in Table 2-2a of Attachment 2 (Waste Analysis Plan). The maintenance residue feedrate shall be limited to 50% of the agent feed rate demonstrated during the Trial Burn Period. This residue weight is assumed to be agent. The maximum drop weight shall not exceed 50% of the maximum agent drop weight demonstrated during the trial burn. The Permittee may increase the feed rate and drop weight of maintenance residue to 75% of the agent feed rate and drop weight demonstrated during the trial burn after the Executive Secretary approves the preliminary results specified in Condition VI.D.3.a.i.a. The kiln speed shall not exceed one rpm for a minimum of 15 minutes after the feed of maintenance residues. The HDC shall be placed in slow speed for a minimum of one hour after the last feed of ECR maintenance residues.

VI.D.3.a.i.d. The feed rate of chlorine to DFS shall not exceed three pounds per hour during the agent post-trial burn periods.

VI.D.3.a.i.e. Throughout the post-trial burn periods, the Permittee shall conduct analysis of the waste to be treated in the DFS to verify that the waste feed is within the physical and chemical composition limits specified in Module V and Attachment 2 (Waste Analysis Plan). The procedure shall follow the waste analysis requirements in Attachments 2 (Waste Analysis Plan) and 3 (Sampling, Analytical, and QA/QC Procedures) for agent and other hazardous waste.

VI.D.3.a.i.f. In accordance with an approved trial burn plan, the Permittee shall demonstrate compliance with the Performance Standards in Condition V.A.2. for the highest rate at which it will feed waste to the DFS.

VI.D.3.a.ii. Operating Conditions

VI.D.3.a.ii.a. The Permittee shall not treat any hazardous waste in the DFS during the post-trial burn period unless the DFS system is operating in compliance with Condition VI.D.1.b., excluding the feed rates in Conditions VI.D.1.b.i.b. and VI.D.1.b.i.w.

VI.D.3.a.iii. Waste Feed Cut-Off Requirements

VI.D.3.a.iii.a. The Permittee shall comply with the waste feed cut-off instrument settings specified in the approved trial burn plan.

VI.D.3.a.iii.b. In the event of a malfunction of a DFS automatic waste feed cut-off instrument as specified in the approved trial burn plan, the Permittee shall immediately manually cut off the waste feed to the DFS and correct the malfunction prior to resuming waste feed. The Permittee shall record in the Operating Record any waste feed cut-off system malfunctions, the time of the malfunction, the time of resuming waste feed, the apparent cause of the malfunctions, and specific steps taken to repair the malfunction and avoid similar future malfunctions.

VI.D.3.a.iii.c. All instrumentation shall be maintained and tested in accordance with Condition V.A.4.

VI.D.3.a.iv. Monitoring Requirements

VI.D.3.a.iv.a. The Permittee shall maintain and calibrate the monitoring and recording equipment as specified in Condition VI.A.4.a and V.A.1.h.i.